SEQUENCE LISTING

<110> INoteborn, Mathieu Rohn, Jennifer Leigh Mumberg, Dominik Donner, Peter
<120> Modifications of Apoptin
<130> 2906-4996.1
<140> To be assigned <141> 2001-10-19
<150> US 60/242,397 <151> 2000-10-20
<160> 20
<170> PatentIn version 3.1
<210> 1 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MISC_FEATURE <222> (1)(121)
<223> Apoptin (a small protein derived from chicken anemia virus) encoded by pCMV-Vp3 and by GFP-Apoptin constructs
<400> 1
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45

Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 65 70 75 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Pro Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Ile Arg Leu 115 120
<210> 2 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> Apoptin protein encoded by pIRESneo alanine mutants
<220> <221> MISC FEATURE <223> Differs from Apoptin protein encoded by pCMV-Vp3 and by GFP-Apoptin constructs by replacement of the arginine residue at position 116 with a lysine residue
<u><400> 2</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45

Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn	
50 55 60	
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln	
65 70 75 80	
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg	
859095	
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Pro Ser Arg Pro	
<u>100</u> <u>105</u> <u>110</u>	
Arg The Alo I va Arg Arg II. Arg I av	
Arg Thr Ala Lys Arg Arg Ile Arg Leu 115 120	
<u><210> 3</u>	
<211> 121 -212> PPT	
<212> PRT <213> Chicken anemia virus	
CITE CHICKET ANCITTA VITUS	
<u><220></u>	
<221> MUTAGEN	
<222> (1)(121) <222: (1)(121)	
<223> mutant Ala(5)-86 of 5-alanine linker-scanning mutant series of Ap	<u>optin</u>
<400> 3	
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe	
<u>1</u> 5 10 15	
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu	
<u>20</u> <u>25</u> <u>30</u>	
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly	
<u>35</u> <u>40</u> <u>45</u>	
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn	
50 55 60	
Con Clas Con The Clas Disc Land And Mal Day A. V. A. W. A. W	
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 70 75 80	

Pro Lys Pro Pro Ser Ala Ala Ala Ala Ala Asp Pro Ser Glu Tyr Arg
<u>85</u> 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Pro Ser Arg Pro
<u>100</u> <u>105</u> <u>110</u>
Arg Thr Ala Arg Arg Ile Arg Leu
115 120
<u><210> 4</u>
<u><211> 121</u>
<212> PRT
<213> Chicken anemia virus
<220>
<221> MUTAGEN
<222> (1)(121)
<223> mutant Ala(5)-91 of 5-alanine linker-scanning mutant series of Apoptin
matant series of Apoptin
<400> 4
<u> </u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
1 5 10 15
<u> </u>
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
505560
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
65 70 75 80
<u> </u>
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Ala Ala Ala Ala Arg
859095
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Pro Ser Arg Pro

Arg Thr Ala Arg Arg Ile Arg Leu
115 120
<210> 5 <211> 121 <212> PRT <213> Chicken anemia virus
22132 Chicken alienna virus
<220> <221> MUTAGEN <222> (1)(121) <223> mutant Ala(5)-96 of 5-alanine linker-scanning mutant series of Apoptin
<u><400> 5</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 55 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 65 70 75 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Ala 85 90 95
Ala Ala Ala Lys Glu Ser Leu Ile Thr Thr Pro Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Ile Arg Leu 115 120

<210> 6 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> mutant Ala(5)-101 of 5-alanine linker-scanning mutant series of Apoptin
<u><400> 6</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 55 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 65 70 75 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Ala Ala Ala Ala Ala Thr Thr Pro Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Arg Ile Arg Leu 115 120

<210> 7 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> mutant Ala(5)-106 of 5-alanine linker-scanning mutant series of Apoptin
<u><400> 7</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln65707580
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95 Val Ser Glu Leu Lys Glu Ser Leu Ile Ala Ala Ala Ala Ala Arg Pro 100 105 110
Arg Thr Ala Arg Arg Ile Arg Leu 115 120
<210> 8 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> mutant Ala(5)-111 of 5-alanine linker-scanning mutant series of Apoptin

<u><400> 8</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 55 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln65707580
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Thr Pro Ser Ala Ala 100 105 110
Ala Ala Arg Arg Ile Arg Leu 115 120
<210> 9 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> mutant Ala(5)-116 of 5-alanine linker-scanning mutant series of Apoptin
<u><400> 9</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30

Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
<u>35</u> <u>40</u> <u>45</u>
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
505560
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
<u>65</u> <u>70</u> <u>75</u> <u>80</u>
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Pro Ser Arg Pro 100 105 110
Arg Thr Ala Ala Ala Ala Ala Leu 115 120
<210> 10 <211> 121
<212> PRT <213> Chicken anemia virus
<u><220></u> < <u><221> MUTAGEN</u>
<222> (1)(121) <223> single point mutant T106A of Apoptin
<400> 10
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
50 55 60

Ser Glu	<u>ı Ser Th</u>	<u>r Gly P</u>	<u>he Lys</u>	Asn Va	<u>l Pro As</u>	p Leu	Arg Th	<u>r Asp Gln</u>
<u>65</u>	-	7	0		75	_		80
Pro Lys	s Pro Pr	o Ser Ly 85	ys Lys	Arg Ser	Cys As 90	p Pro S	Ser Glu	Tyr Arg 95
Val Sei	r Glu Le		ilu Ser	Leu Ile 105	-	Thr P	ro Ser <i>A</i> 110	Arg Pro
Arg Th	r Ala A	rg Arg A	Arg Ile	Arg Lei	1			
	115	-		120	-			
<210> <211> <212> <213>	121	n anem	ia vimi					
<u> </u>	CHICKE	ii anciii	ia viius	2				
	MUTA (1)(12							
<223>	single p	ooint m	utant T	107A of	f Apopti	<u>n</u>		
<400>	<u>11</u>							
Met As 1	sn Ala L —	eu Gln 5	Glu As	p Thr P	ro Pro C 10	ily Pro	Ser Th	r Val Phe 15
Arg Pro	o Pro Th 2(er Arg	Pro Leu 25	Glu Th	r Pro H	His Cys 30	Arg Glu
Ile Arg	Ile Gly 35	Ile Ala	Gly Ile 40	Thr Ile	Thr Let	1 <u>Ser L</u> 45	eu Cys	Gly
Cys Al. 50		la Arg	Ala Pro 55		u Arg S	er Ala 60	Thr Ala	a Asp Asn —
Ser Glu 65	Ser Th		he Lys 0	Asn Va	l Pro As 75	_	Arg Th	r Asp Gln 80
Pro Lys	s Pro Pro	o Ser Ly 85	ys Lys .	Arg Ser	Cys As ₁	p Pro S	Ser Glu	Tyr Arg

Val Ser Glu Le	u Lys Glu Se	r Leu Ile Thr	Ala Thr Pro S	Ser Arg Pro
100	•	105		10
Arg Thr Ala Ar	g Arg Arg Ile			
_115	<u> </u>	120		
-2105 12				
<210> 12 <211> 121				
<212> PRT				
<213> Chicker	n anemia vim	16		
CZISZ CITICACI	i ancima viiu	15		
<220>				
<221> MUTA	GEN			
<222> (1)(12				
<223> single p		Γ108A of Ap	optin	
		-		
<400> 12				
Met Asn Ala La	eu Gln Glu A	sp Thr Pro P	ro Gly Pro Se	r Thr Val Phe
1	<u>5</u>	1	<u> </u>	15
Arg Pro Pro Th	_		Thr Pro His	
20	<u> </u>	25		30
Ila Ama Ila Clas	Ila Ala Clasti	- The Hartha	I CI	Corr Clar
Ile Arg Ile Gly	_			Cys Gly
<u>35</u>	4	<u> </u>	45	
Cys Ala Asn Al	la Aro Ala Pr	n Thr I eu Ai	a Ser Ala Thi	r Ala Asp Asp
50	55		60	Hia Asp Asii
		<u></u>		
Ser Glu Ser Thi	Gly Phe Lys	s Asn Val Pro	Asp Leu Arg	Thr Asp Gln
65	70		75	80
Pro Lys Pro Pro	Ser Lys Lys	Arg Ser Cys	Asp Pro Ser	Glu Tyr Arg
	85	90	_	95
Val Ser Glu Lei			<u>Thr Ala Pro S</u>	Ser Arg Pro
100	<u> </u>	105	1	10
A The Add A		A T		
Arg Thr Ala Ar	g Arg Arg Ile	Arg Leu		

<210> 13 <211> 121 <212> PRT
<213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> single point mutant P109A of Apoptin
<u><400> 13</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 5 15 15 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 55 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln65707580
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Ala Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Arg Ile Arg Leu 115 120

<210> 14			
<u><211> 121</u>			
<212>_PRT			
<213> Chicken anemia	virus		
Caron Cindren and ma	<u> </u>		
<220>			
<221> MUTAGEN			
<222> (1)(121)			
<223> single point muta	ent T106E of A	nontin	
<2237 Shighe point muta	ant 1100E of A	рорин	
<100× 14			
<400> 14			
Met Ann Ale I en Clin Cl	laa Aasa Tibaa Daasii		0 0 1110
Met Asn Ala Leu Gln Gl	u Asp Inr Pro	•	
<u>5</u>		<u>10</u>	15
4 D D TEL C C	4 D I G		
Arg Pro Pro Thr Ser Ser	_	lu Thr Pro H	
	25		30
Ile Arg Ile Gly Ile Ala G	-		eu Cys Gly
<u>35</u>	<u>40</u>	45	
Cys Ala Asn Ala Arg Al			<u> Thr Ala Asp Asn</u>
		60	
<u>Ser Glu Ser Thr Gly Phe</u>	Lys Asn Val Pi	ro Asp Leu A	Arg Thr Asp Gln
65 70		<u>75</u>	80
Pro Lys Pro Pro Ser Lys	Lys Arg Ser Cy	s Asp Pro So	er Glu Tyr Arg
85	90		95
			
<u>Val Ser Glu Leu Lys Glu</u>	Ser Leu Ile Glu	a Thr Thr Pr	o Ser Arg Pro
100	105		110
Arg Thr Ala Arg Arg Arg	g Ile Arg Leu		
_115	120		

<210> 15 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> single point mutant T107E of Apoptin
<400> 15
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 505560
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 65 70 75 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Glu Thr Pro Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Arg Ile Arg Leu 115 120

<210> 16
< <u></u>
<212> PRT
<213> Chicken anemia virus
22132 Cineken anemia vitus
-220 5
<220>
<221> MUTAGEN
<222> (1)(121)
<223> single point mutant T108E of Apoptin
<400> 16

Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
<u>1</u> 5 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
<u>20</u> <u>25</u> <u>30</u>
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
50 55 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
<u>65</u> <u>70</u> <u>75</u> 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg
859095
Vol Com Cha Lon Lon Cha Com Lon Ha Till Till Cha Da Gara A
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Thr Glu Pro Ser Arg Pro
<u>100</u> <u>105</u> <u>110</u>
Arg Thr Ala Arg Arg Arg Ile Arg Leu
<u>115</u> <u>120</u>

<210> 17 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> double point mutation T106A107A of Apoptin
<400> 17
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe151015
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 55 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 65 70 75 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Ala Ala Thr Pro Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Arg Ile Arg Leu 115 120

<210> 18
<u><211> 121</u>
<212> PRT
<213> Chicken anemia virus
-220-
<220>
<221> MUTAGEN <222> (1)(121)
<223> double point mutant T107A108A of Apoptin
22237 dodole point mutant 1107A108A of Apoptin
<400> 18
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe
<u>1 5 10 15</u>
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly
<u>35</u> <u>40</u> <u>45</u>
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn
5055 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln
65 <u>70</u> <u>75</u> 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg
<u>85</u> <u>90</u> <u>95</u>
Val Ser Glu Leu Lys Glu Ser Leu Ile Thr Ala Ala Pro Ser Arg Pro
<u>100</u> <u>105</u> <u>110</u>
Arg The Ala Arg Arg Arg IIa Arg I ay
Arg Thr Ala Arg Arg Arg Ile Arg Leu 115 120
120

<210> 19 <211> 121 <212> PRT <213> Chicken anemia virus
<220> <221> MUTAGEN <222> (1)(121) <223> double point mutant T106A108A of Apoptin
<u><400> 19</u>
Met Asn Ala Leu Gln Glu Asp Thr Pro Pro Gly Pro Ser Thr Val Phe 1 10 15
Arg Pro Pro Thr Ser Ser Arg Pro Leu Glu Thr Pro His Cys Arg Glu 20 25 30
Ile Arg Ile Gly Ile Ala Gly Ile Thr Ile Thr Leu Ser Leu Cys Gly 35 40 45
Cys Ala Asn Ala Arg Ala Pro Thr Leu Arg Ser Ala Thr Ala Asp Asn 50 60
Ser Glu Ser Thr Gly Phe Lys Asn Val Pro Asp Leu Arg Thr Asp Gln 65 70 75 80
Pro Lys Pro Pro Ser Lys Lys Arg Ser Cys Asp Pro Ser Glu Tyr Arg 85 90 95
Val Ser Glu Leu Lys Glu Ser Leu Ile Ala Thr Ala Pro Ser Arg Pro 100 105 110
Arg Thr Ala Arg Arg Arg Ile Arg Leu 115 120